The list of all airlines for a given airport

SELECT a.name, a.headQuarters, a.type, a.dateEstablished FROM airline a
INNER JOIN partner USING(name)
INNER JOIN airport ap USING(abbreviation)
WHERE ap.abbreviation = '{airport abbreviation}';

Output sample

Airport abbreviation = 'LAX'

#	NAME	HEADQUARTERS	TYPE	DATEESTABLISHED
1	SkyWest Airlines	St. George, California	local	1972-04-23
2	JetBlue Airways	Long Island City, New York	domestic	1998-08-09
3	American Airlines	Dallas Fort Worth	international	1926-04-15

The list of all flight schedules for a given airline. You must be able to sort this list by starting location, destination, longest flight or shortest flight

SELECT origin, destination, departureTime, arrivalTime,
{fn timestampdiff(SQL_TSI_MINUTE, departureTime,arrivalTime)} AS "Flight Duration"
FROM flightSchedule f
INNER JOIN airline a
ON f.airlineName = a.name
WHERE f.airlineName = '{airline name}'
GROUP BY origin, destination, departureTime, arrivalTime
ORDER BY origin;
--ORDER BY destination;
--ORDER BY "Flight Duration";
--ORDER BY "Flight Duration" DESC;

Output sample

f.airlineName = 'Envoy Air'

#	ORIGIN	DESTINATION	DEPARTURETIME	ARRIVALTIME	Flight Duration	
1	BGM	JFK	08:00:00	09:00:00		60
2	BGM	JFK	13:00:00	14:00:00		60
3	JFK	BGM	10:00:00	11:00:00		60
4	JFK	BGM	15:00:00	16:00:00		60

Flight schedules that charge for extras (water, etc.)

SELECT DISTINCT airlineName, origin, destination, departureTime FROM flightSchedule

INNER JOIN localDomesticFlight USING(flightId)

INNER JOIN amenity USING(flightId)

INNER JOIN extraCharges USING(type);

Output sample

#	AIRLINENAME	ORIGIN	DESTINATION	DEPARTURETIME
1	Envoy Air	BGM	JFK	08:00:00
2	Envoy Air	BGM	JFK	13:00:00
3	Envoy Air	JFK	BGM	10:00:00
4	Envoy Air	JFK	BGM	15:00:00
5	Hawaiian Airlines	JFK	SAN	14:00:00
6	Hawaiian Airlines	SAN	JFK	03:00:00
7	JetBlue Airways	BGM	LAX	03:00:00
8	JetBlue Airways	LAX	BGM	12:00:00
9	SkyWest Airlines	LAX	SAN	10:00:00
10	SkyWest Airlines	LAX	SAN	17:00:00
11	SkyWest Airlines	SAN	LAX	07:00:00
12	SkyWest Airlines	SAN	LAX	14:00:00

The crew roster for each flight schedule for each airline

```
SELECT a.name AS "Airline", origin, destination, departureTime,
```

MAX(CASE WHEN c.type = 'Pilot' THEN c.name ELSE NULL END) AS "Pilot",

 ${\sf MAX}({\sf CASE}\ {\sf WHEN}\ {\sf c.type}\ =\ {\sf 'Co-pilot'}\ {\sf THEN}\ {\sf c.name}\ {\sf ELSE}\ {\sf NULL}\ {\sf END})\ {\sf AS}\ {\sf "Co-pilot"}$

MAX(CASE WHEN c.type = 'Navigator' THEN c.name ELSE NULL END) AS "Navigator",

MAX(CASE WHEN c.type = 'Flight Attendant' THEN c.name ELSE NULL END) AS "Flight

Attendant"

FROM crewMember c

INNER JOIN crew USING(crewId)

INNER JOIN flightAssignment USING(crewId)

INNER JOIN flightSchedule f USING(flightId)

INNER JOIN airline a

ON f.airlineName = a.name

Commented [1]: I did not get this one to work fully, will come back to it once the rest is done. If we don't have time though, it's pretty close

GROUP BY a.name, origin, destination, departureTime;

r
anchez
anchez
urtado
urtado
evy
evy
evy
evy
olina
olina
LHR MEX 01:00:00 Maty Gomez Jaira Ross Fausto Mo MEX LHR 13:00:00 Maty Gomez Jaira Ross Fausto Mo
0

Flight Attendant	-
Obama Clerk	
Obama Clerk	
Etaas Wat	
Oben Bin	
Oben Bin	
Matias Furs	
Matias Furs	
Raul Jimenez	
Pepe Lepu	
Pepe Lepu	

The trips that are available if you do make one stop over

SELECT f1.origin, f2.origin AS "Stop",
f2.destination FROM flightSchedule f1
INNER JOIN flightSchedule f2 ON f1.destination = f2.origin
WHERE f1.origin <> f2.destination;

Output sample

#	ORIGIN	Stop	DESTINATION
1	SAN	LAX	BGM
2	SAN	LAX	MEX
3	LAX	SAN	JFK
4	SAN	LAX	BGM
5	SAN	LAX	MEX
6	LAX	SAN	JFK
7	BGM	JFK	SAN
8	JFK	BGM	LAX
9	BGM	JFK	SAN
10	JFK	BGM	LAX
11	SAN	JFK	BGM
12	SAN	JFK	BGM
13	JFK	SAN	LAX
14	JFK	SAN	LAX
15	BGM	LAX	SAN
16	BGM	LAX	SAN
17	BGM	LAX	MEX
18	LAX	BGM	JFK
19	LAX	BGM	JFK
20	LAX	MEX	LHR
21	MEX	LAX	SAN
22	MEX	LAX	SAN
23	MEX	LAX	BGM
24	LHR	MEX	LAX

Management reports of mifly information that is related to flight schedules, including arriving flights per city, departing flights per city, list of airlines in each service category, crews that fly multiple flights in a single day

Arriving flights per city

SELECT city, COUNT(destination) AS "Number of Arriving Flights"
FROM flightSchedule f
INNER JOIN airport a
ON f.destination = a.abbreviation
GROUP BY city;

Output sample

#	CITY	Number of Arriving Flights
1	Binghamton	3
2	Hillingdon	1
3	Los Angeles	4
4	Mexico City	2
5	New York	3
6	San Diego	3

Departing flights per city

SELECT city, COUNT(origin) AS "Number of Departing Flights"
FROM flightSchedule f
INNER JOIN airport a
ON f.origin = a.abbreviation
GROUP BY city;

Output sample

¥	CITY	Number of Departing Flights
1	Binghamton	
2	Hillingdon	
3	Los Angeles	
4	Mexico City	
5	New York	
6	San Diego	

List of airlines in each service category

Cews that fly multiple flights in a single day

SELECT c.crewld,

MAX(CASE WHEN c.type = 'Pilot' THEN c.name ELSE NULL END) AS "Pilot",
MAX(CASE WHEN c.type = 'Co-pilot' THEN c.name ELSE NULL END) AS "Co-pilot"

FROM crewMember c

INNER JOIN (

SELECT DISTINCT fa.crewld FROM flightSchedule fs

INNER JOIN flightInstance fi

USING (flightId)

INNER JOIN flightAssignment fa

USING (flightId)

GROUP BY fa.crewld, flightDate

HAVING COUNT(*) > 1) tempTable

USING (crewld)

GROUP BY c.crewld;

# CRE	EWID	Pilot	Co-pilot
1	1111	Mike Tred	Kayla Hes
2	1112	Jessica Yes	Jasmine Fes
3	1113	Kaithin Nerns	Mimi Opkins
4	1114	Daisy Pinedo	Juan Luis Osorio
5	1115	Jenny Viera	Mantain Jes
6	1116	Maty Gomez	Jaira Ross

A list of all incident reports by flight instance

SELECT airlineName, origin, destination, flightDate, fi.departureTime, type, description FROM flightInstance fi

INNER JOIN incidentReport USING (flightId, flightDate)

INNER JOIN flightSchedule USING(flightId)

ORDER BY airlineName, flightDate;

#	AIRLINENAME	ORIGIN	DESTINATION	FLIGHTDATE	DEPARTURETIME	TYPE	DESCRIPTION
1	American Airlines	LAX	MEX	2020-12-04	01:01:00	Thunderstom	There were multiple thunders hitting the .
2	American Airlines	LAX	MEX	2020-12-04	01:01:00	Sick	A passenger threw up on the airplane
3	American Airlines	MEX	LAX	2020-12-06	07:04:00	Fight	A passenger and a flight attendant got in.
4	American Airlines	MEX	LAX	2020-12-07	07:38:00	Undentified object	Random object flying around the plane
5	American Airlines	MEX	LAX	2020-12-07	07:38:00	Sick	A passenger threw up on the airplane
6	American Airlines	MEX	LAX	2020-12-08	07:11:00	Sick	A passenger threw up on the airplane
7	American Airlines	LAX	MEX	2020-12-08	01:01:00	Turbulence	Air caused turbulence
8	American Airlines	MEX	LAX	2020-12-09	07:03:00	Sick	A passenger threw up on the airplane
9	American Airlines	LAX	MEX	2020-12-09	01:21:00	Thunderstom	There were multiple thunders hitting the .
10	American Airlines	LAX	MEX	2020-12-11	01:21:00	Undentified object	Random object flying around the plane
11	Envoy Air	BGM	JFK	2020-12-02	08:31:00	Turbulence	Air caused turbulence
12	Envoy Air	BGM	JFK	2020-12-02	08:31:00	Thunderstom	There were multiple thunders hitting the .
13	Envoy Air	BGM	JFK	2020-12-03	13:12:00	Undentified object	Random object flying around the plane
14	Envoy Air	BGM	JFK	2020-12-03	13:12:00	Fight	A passenger and a flight attendant got in
15	Envoy Air	BGM	JFK	2020-12-03	08:11:00	Sick	A passenger threw up on the airplane
16	Envoy Air	JFK	BGM	2020-12-04	15:12:00	Sick	A passenger threw up on the airplane
17	Envoy Air	BGM	JFK	2020-12-04	08:20:00	Turbulence	Air caused turbulence
18	Envoy Air	JFK	BGM	2020-12-05	15:11:00	Sick	A passenger threw up on the airplane
19	Envoy Air	JFK	BGM	2020-12-09	15:21:00	Sick	A passenger threw up on the airplane
20	Envoy Air	BGM	JFK	2020-12-09	13:40:00	Undentified object	Random object flying around the plane
21	Envoy Air	BGM	JFK	2020-12-10	08:12:00	Thunderstom	There were multiple thunders hitting the .
22	Hawaiian Airlines	JFK	SAN	2020-12-04	14:03:00	Sick	A passenger threw up on the airplane
23	Hawaiian Airlines	JFK	SAN	2020-12-05	14:21:00	Sick	A passenger threw up on the airplane
24	Hawaiian Airlines	SAN	JFK	2020-12-05	03:21:00	Fight	A passenger and a flight attendant got in.
25	Hawaiian Airlines	JFK	SAN	2020-12-06	14:08:00	Sick	A passenger threw up on the airplane
26	Hawaiian Airlines	SAN	JFK	2020-12-06	03:42:00	Sick	A passenger threw up on the airplane
27	Hawaiian Airlines	JFK	SAN	2020-12-11	14:08:00	Undentified object	Random object flying around the plane
28	Hawaiian Airlines	SAN	JFK	2020-12-11	03:42:00	Undentified object	Random object flying around the plane
29	Hawaiian Airlines	SAN	JFK	2020-12-11	03:42:00	Fig. Undentified object	A passenger and a flight attendant got in.
30	JetBlue Airways	BGM	LAX	2020-12-08	03:01:00	Lights off	The lights went off
31	JetBlue Airways	BGM	LAX	2020-12-09	03:21:00	Sick	A passenger threw up on the airplane
32	JetBlue Airways	BGM	LAX	2020-12-09	03:21:00	Sick	A passenger threw up on the airplane
33	JetBlue Airways	BGM	LAX	2020-12-09	03:21:00	Fight	A passenger and a flight attendant got in
34	JetBlue Airways	LAX	BGM	2020-12-10	12:04:00	Turbulence	Air caused turbulence
35	JetBlue Airways	BGM	LAX	2020-12-10	03:00:00	Sick	A passenger threw up on the airplane
36	JetBlue Airways	LAX	BGM	2020-12-11	12:08:00	Thunderstom	There were multiple thunders hitting the
37	JetBlue Airways	LAX	BGM	2020-12-11	12:08:00	Sick	A passenger threw up on the airplane

38	SkyWest Airlines	SAN	LAX	2020-12-01	07:32:00	Fight	A passenger and a flight attendant got in
39	SkyWest Airlines	SAN	LAX	2020-12-02	14:00:00	Turbulence	Air caused turbulence
40	SkyWest Airlines	SAN	LAX	2020-12-02	14:00:00	Sick	A passenger threw up on the airplane
41	SkyWest Airlines	SAN	LAX	2020-12-03	07:32:00	Sick	A passenger threw up on the airplane
42	SkyWest Airlines	SAN	LAX	2020-12-04	07:10:00	Turbulence	Air caused turbulence
43	SkyWest Airlines	SAN	LAX	2020-12-04	07:10:00	Lights off	The lights went off
14	SkyWest Airlines	SAN	LAX	2020-12-05	14:23:00	Thunderstom	There were multiple thunders hitting the
45	SkyWest Airlines	SAN	LAX	2020-12-06	07:10:00	Fight	A passenger and a flight attendant got in
46	SkyWest Airlines	SAN	LAX	2020-12-07	07:10:00	Sick	A passenger threw up on the airplane
47	SkyWest Airlines	LAX	SAN	2020-12-08	17:10:00	Fight	A passenger and a flight attendant got in
48	SkyWest Airlines	LAX	SAN	2020-12-09	17:07:00	Sick	A passenger threw up on the airplane
49	SkyWest Airlines	SAN	LAX	2020-12-09	14:20:00	Undentified object	Random object flying around the plane
50	SkyWest Airlines	SAN	LAX	2020-12-09	14:20:00	Thunderstom	There were multiple thunders hitting the
51	SkyWest Airlines	LAX	SAN	2020-12-10	17:20:00	Turbulence	Air caused turbulence
52	SkyWest Airlines	LAX	SAN	2020-12-10	10:20:00	Sick	A passenger threw up on the airplane
53	SkyWest Airlines	LAX	SAN	2020-12-10	10:20:00	Fight	A passenger and a flight attendant got in
54	SkyWest Airlines	SAN	LAX	2020-12-10	07:20:00	Undentified object	Random object flying around the plane
55	SkyWest Airlines	SAN	LAX	2020-12-10	07:20:00	Turbulence	Air caused turbulence
56	SkyWest Airlines	SAN	LAX	2020-12-10	07:20:00	Thunderstom	There were multiple thunders hitting the
57	United Airlines	MEX	LHR	2020-12-08	13:11:00	Fight	A passenger and a flight attendant got in
58	United Airlines	MEX	LHR	2020-12-10	13:44:00	Undentified object	Random object flying around the plane
59	United Airlines	MEX	LHR	2020-12-10	13:44:00	Sick	A passenger threw up on the airplane
50	United Airlines	MEX	LHR	2020-12-11	13:08:00	Sick	A passenger threw up on the airplane

Flight instances that are scheduled to depart in three days

```
SELECT airlineName, origin, destination, flightDate, fi.departureTime FROM
flightinstance fi
INNER JOIN flightSchedule USING(flightId)
WHERE DATE(CAST(flightdate AS timestamp)) = DATE({fn TIMESTAMPADD(SQL_TSI_DAY, +3,
CURRENT_TIMESTAMP)});
```

Output sample

#	AIRLINENAME	ORIGIN	DESTINATION	FLIGHTDATE	DEPARTURETIME
1	SkyWest Airlines	SAN	LAX	2020-12-11	14:00:00
2	SkyWest Airlines	LAX	SAN	2020-12-11	17:10:00
3	Envoy Air	BGM	JFK	2020-12-11	13:40:00
4	Envoy Air	JFK	BGM	2020-12-11	15:21:00
5	Hawaiian Airlines	SAN	JFK	2020-12-11	03:42:00
6	Hawaiian Airlines	JFK	SAN	2020-12-11	14:08:00
7	JetBlue Airways	BGM	LAX	2020-12-11	03:51:00
8	JetBlue Airways	LAX	BGM	2020-12-11	12:08:00
9	American Airlines	LAX	MEX	2020-12-11	01:21:00
10	American Airlines	MEX	LAX	2020-12-11	07:38:00
11	United Airlines	LHR	MEX	2020-12-11	01:52:00
12	United Airlines	MEX	LHR	2020-12-11	13:08:00

All flight instances that arrived in the busiest airport in the last week

SELECT origin, destination, flightDate, fi.departureTime FROM flightInstance fi INNER JOIN flightSchedule fs USING (flightId)
WHERE flightDate = (
select distinct flightDate
from flightinstance
natural join airport

where {fn timestampdiff(SQL_TSI_DAY,flightdate,current_timestamp)} between 1 and 7 group by flightdate,airport."NAME" order by count(flightdate) DESC FETCH FIRST ROW ONLY);

ŧ	ORIGIN	DESTINATION	FLIGHTDATE	DEPARTURETIME
1	SAN	LAX	2020-12-04	07:10:00
2	LAX	SAN	2020-12-04	10:32:00
3	SAN	LAX	2020-12-04	14:20:00
4	LAX	SAN	2020-12-04	17:07:00
5	BGM	JFK	2020-12-04	08:20:00
6	JFK	BGM	2020-12-04	10:11:00
7	BGM	JFK	2020-12-04	13:31:00
8	JFK	BGM	2020-12-04	15:12:00
9	SAN	JFK	2020-12-04	03:11:00
10	JFK	SAN	2020-12-04	14:03:00
11	BGM	LAX	2020-12-04	03:20:00
12	LAX	BGM	2020-12-04	12:05:00
13	LAX	MEX	2020-12-04	01:01:00
14	MEX	LAX	2020-12-04	07:11:00
15	LHR	MEX	2020-12-04	01:52:00
16	MEX	LHR	2020-12-04	13:08:00

Flight instances that departed more than 30 minutes late

SELECT airlineName, origin, destination, fi.flightDate ,fs.departureTime as "Scheduled Departure", fi.departureTime as "Actual Departure", {fn timestampdiff(SQL_TSI_MINUTE, fs.departureTime, fi.departureTime)} as Difference

FROM flightSchedule fs

INNER JOIN flightInstance fi

ON fs.flightId = fi.flightId

 $WHERE~\{fn~timestampdiff(SQL_TSI_MINUTE,~fs.departureTime,~fi.departureTime)\} > 30;\\$

#	AIRLINENAME	ORIGIN	DESTINATION	FLIGHTDATE	Scheduled Departure	Actual Departure	DIFFERENCE
1	SkyWest Airlines	SAN	LAX	2020-12-01	07:00:00	07:32:00	
2	SkyWest Airlines	SAN	LAX	2020-12-03	07:00:00	07:32:00	
3	SkyWest Airlines	LAX	SAN	2020-12-04	10:00:00	10:32:00	
4	SkyWest Airlines	LAX	SAN	2020-12-06	10:00:00	10:32:00	
5	SkyWest Airlines	LAX	SAN	2020-12-07	10:00:00	10:32:00	
6	SkyWest Airlines	LAX	SAN	2020-12-06	17:00:00	17:37:00	
7	Envoy Air	BGM	JFK	2020-12-02	08:00:00	08:31:00	
8	Envoy Air	JFK	BGM	2020-12-02	10:00:00	10:31:00	
9	Envoy Air	JFK	BGM	2020-12-03	10:00:00	10:41:00	
10	Envoy Air	JFK	BGM	2020-12-08	10:00:00	10:40:00	
11	Envoy Air	JFK	BGM	2020-12-10	10:00:00	10:31:00	
12	Envoy Air	BGM	JFK	2020-12-01	13:00:00	13:32:00	
13	Envoy Air	JFK	BGM	2020-12-01	15:00:00	15:32:00	
14	Envoy Air	BGM	JFK	2020-12-04	13:00:00	13:31:00	
15	Envoy Air	BGM	JFK	2020-12-09	13:00:00	13:40:00	
16	Envoy Air	BGM	JFK	2020-12-11	13:00:00	13:40:00	
17	Hawaiian Airlines	SAN	JFK	2020-12-01	03-00-00	03:31:00	
18	Hawaiian Airlines	SAN	JFK	2020-12-06	2020-12-11	03:42:00	
19	Hawaiian Airlines	SAN	JFK	2020-12-11	03:00:00	03:42:00	
20	JetBlue Airways	BGM	LAX	2020-12-11	03:00:00	03:51:00	
21	American Airlines	MEX	LAX	2020-12-07	07:00:00	07:38:00	
22	American Airlines	MEX	LAX	2020-12-11	07:00:00	07:38:00	
23	United Airlines	LHR	MEX	2020-12-02	01:00:00	01:48:00	
24	United Airlines	MEX	LHR	2020-12-03	13:00:00	13:44:00	
25	United Airlines	LHR	MEX	2020-12-04	01:00:00	01:52:00	
26	United Airlines	LHR	MEX	2020-12-05	01:00:00	01:48:00	
27	United Airlines	LHR	MEX	2020-12-09	01:00:00	01:48:00	
28	United Airlines	MEX	LHR	2020-12-10	13:00:00	13:44:00	
29	United Airlines	LHR	MEX	2020-12-11	01:00:00	01:52:00	

Additional Business Rule Queries

Business Rule: Crew Member salaries will be based upon position

The average salary for each type of crew member

SELECT AVG(CASE WHEN type = 'Pilot' THEN SALARY ELSE NULL END) AS "Pilot",

AVG(CASE WHEN type = 'Co-pilot' THEN SALARY ELSE NULL END) AS "Co-pilot",

AVG(CASE WHEN type = 'Navigator' THEN SALARY ELSE NULL END) AS "Navigator",

AVG(CASE WHEN type = 'Flight Attendant' THEN SALARY ELSE NULL END) AS "Flight Attendant"

Output sample

FROM crewMember;

#	Pilot	Co-pilot	Navigator	Flight Attendant
1	231272	215588	201050	80516

Business Rule: Each airplane is required to undergo a maintenance check every so often. Each of these maintenance checks has a date, type, and lead inspector. The type of check is determined by the model of the airplane.

Every maintenance check that has been done on a given airplane, sorted in reverse chronological order (the most recent maintenance check is the first result)

SELECT leadInspector, type, date FROM maintenanceCheck INNER JOIN airplane USING(tailNumber)
WHERE tailNumber = '{tail number}'
ORDER BY date DESC;

Output sample tailNumber = 'FAA132'

#	LEADINSPECTOR	ТҮРЕ	DATE
1	Dimitri Smith	Ventilation	2019-12-06
2	Dimitri Smith	Wing	2019-09-03

Business Rule: Each airline must have the date they were established

Every airline that was established after 1950

SELECT name, headquarters, type, dateEstablished FROM airline WHERE YEAR(dateEstablished) > 1950 ORDER BY NAME;

Output sample

#	NAME	HEADQUARTERS	TYPE	DATEESTABLISHED		
1	Envoy Air	Irving, New York	local	1984-05-06		
2	JetBlue Airways	Long Island City, New York	domestic	1998-08-09		
3	SkyWest Airlines	St. George, California	local	1972-04-23		

Business Rule: International flights have the option to add WiFi for an additional cost The flight schedule for the international flight with the most expensive WiFi

```
SELECT airlineName, origin, destination, departureTime,
cost AS "WiFi Cost" FROM flightSchedule
INNER JOIN internationalFlight USING(flightId)
WHERE flightId IN
(SELECT flightId FROM internationalFlight
GROUP BY flightId, cost
HAVING cost >=
    (SELECT MAX(cost)
    FROM internationalFlight)
);
```

#	AIRLINENAME	ORIGIN	DESTINATION	DEPARTURETIME	WiFi Cost
1	United Airlines	LHR	MEX	01:00:00	60